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ABSTRACT

A study investigated the influence of television program type and scheduling characteristics on patterns of program choice. The problem to be explored was the relative contribution of program content to patterns of audience flow. Soap operas were scheduled on competing channels with the assumption that audience duplication between pairs of these programs should be higher than among pairs of similarly scheduled nonserials. Diary data collected from 1,623 randomly selected New York area heads of households in May 1981 provided the database from which a subset of all female heads of households were analyzed. Results strongly supported the hypothesis that predicted greater within-channel audience duplication among pairs of serials than among pairs of nonserials. The results failed to support the hypotheses that predicted that between-channel duplication would be greatest for adjacent pairs of serials. In conclusion, the preference for types of program content plays a significant role in determining patterns of program choice. Indeed, the phenomenon of adjacent program audience duplication, or inheritance effects, appears to be facilitated by sequentially scheduling programs of a type. In addition, the study indicates the complications that actual patterns of program scheduling introduce to analyses of viewing behavior. (EL)

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THE ROLE OF TELEVISION PROGRAM CONTENT AND SCHEDULING IN PATTERNS OF CHOICE

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Television program choice has long been studied by scholars from a wide range of disciplines. Media economists, marketing researchers and proponents of the "uses and gratifications" paradigm have all focused their attention on this important facet of communication behavior. Despite the varied origins and purposes of each approach, all have assumed that preference for types of program content play a central role in determining patterns of choice. Unfortunately, a considerable body of audience research has found that program type has little or no influence on such patterns. Rather it is how and when programs are scheduled that seems to determine choice.

While Webster and Wakshlag (1983) have posited a model of choice which, theoretically, resolves this discrepancy, many of its assumptions remain to be empirically tested. The present study contributes to that effort by examining the influence of program type and scheduling characteristics on patterns of program choice.

Preference for types of television program content is the primary explanatory variable in most models of program choice

(e.g., Bowman and Farley, 1972; Lehmann, 1971; Owen, Beebe and Manning, 1974). Viewers, it is assumed, have well defined likes and dislikes for categories of program content, and will, as a result, demonstrate analogous patterns of program selection and avoidance. As Webster and Wakshlag (1983) have noted, this assumption is "congruent with the expectation of attitude - behavior consistency common is much behavioral theory." (p. 432)

A succession of studies dating back to the 1960's (Kirsch and Banks, 1962) has attempted to empirically identify those content characteristics which correlate with viewer preferences. Typically, factor analytic techniques have been applied to data on claimed program liking (e.g. Frank, Becknell and Clokey, 1971; Wells, 1969) or reports of program viewing (Bowman and Farley, 1972; Gensch and Ranganathan, 1974; Swanson, 1967) to determine which of many possible typologies are "defined in terms of viewer preferences."

While preference and choice are clearly distinct constructs, (Webster and Wakshlag, 1985) a careful reading of these studies suggests that the assumed link between these constructs is so compelling that many researchers have treated data on preference and choice more or less interchangeably (c.f. Webster and Wakshlag, 1983). This has produced a rather confused collection of findings, characterized by claims and counter-claims focussing on the methodological, rather than theoretical, short-comings of earlier work.

Overall, analyses of preference data have produced the intuitively appealing, if unsurprizing, result that common-sense

program types (e.g. situation comedies, serial dramas, news and public affairs, etc.) correlate with viewer preferences.

Analyses of choice behavior, however, have been more problematic. Here, results are clearly confounded with the scheduling characteristics of programs. For example, Kirsch and Banks (1962) found a CBS Western factor and a separate NBC Western factor. Similarly, Swanson (1967) and Bowman and Farley (1972) produced factors which seemed as easily explained by the network on which shows were broadcast as by their content. On one hand, such network effects might reflect the existance of types within types. It is possible, for example, that westerns aired over a particular network are more homogeneous with respect to content than westerns aired over a different network, and so, these types capture meaningful differences in program content. On the other hand, Ehrenberg (1968) has argued that such analyses pretended ignorance of the data and succeeded only in rediscovering the networks.

More recent factor analyses of viewing and/or preference data (e.g., Frank, et al., 1971; Gensch and Ranganathan, 1974; Rao, 1975) have attempted to accommodate Ehrenberg's criticisms by statistically controlling for variation attributable to scheduling characteristics. As Webster and Wakshlag (1983) have observed, however, program type and scheduling are confounded, making the interpretation of results difficult at best. Indeed, researchers at Aske, Ltd. (1975) have argued that:

> methodologically...scheduling effects are too complex in structure to be eliminated by a simply type of

> regression analysis. The effect of simmultaneous programmes on opposing channels, although simple enough to conceptualize, is difficult, if not impossible to handle by linear mathematics (p. 14)

An alternative method of analysis has been advocated by Goodhardt, Ehrenberg and Collins (1975). Patterns of program choice are identified by crosstabulating the audiences for any pair of programs, and observing the circumstances under which audience overlap departs from an assumption of statistical independence. Using this technique in a long program of research on British and American audiences, Goodhardt, et al. (1975) documented certain predictable patterns of audience flow. Among these are "channel loyalty," a disproportionately high overlap of audiences for any two programs broadcast by the same channel on different days (c.f. Bruno, 1973), and "inheritance effects," a level of audience duplication above ordinary channel loyalty between adjacent or adjacent plus one programs on the same channel. Goodhardt, et al. (1975) speculated that inheritance effects resulted from: 1) people staying tuned out of inertia, 2) programs ending part-way through shows on competing channels, and 3) people tuning to the previous program to wait for the next to appear. (p. 45) Notably, the common practice of sequentially scheduling programs of a type (Eastman, Klein and Head, 1981) was not identified as a cause of audience inheritance. In fact, what is most striking about this research is its failure to identify any kind of program type effects. According to Goodhardt, et al. (1975) "there is no special tendency across the population for people who watch one program of a given type to also watch others of the same type." (p. 48)

The result of such research into patterns of audience flow is a litany of findings that are often counter-intuitive and atheoretical. Program choice, it seems, is determined by the structure of available program options. Those patterns in choice behavior that correlate with program type can be explained, at least in a statistical sense, by scheduling characteristics. Systematic preferences for types of content, the factor which theoretically should determine choice, are not manifest in actual audience behavior.

Webster and Wakshlag (1983), have argued that this apparent discrepancy results from the confounding of program content with scheduling characteristics, and the failure of most research efforts to recognize factors that mediate the relationship between preference and choice. Specifically, most studies implicitly assume an "active" audience, in which viewers are attracted to, or repulsed from, the medium by the availability of preferred content (i.e., that non-viewing is explained by specific program preferences). Webster and Wakshlag have argued, however, that viewer availability is typically unrelated to programming and as such introduces considerable variation in choice behaviors which mask the presence of program type effects (c.f., Besen and Mitchell, 1976; Steiner, 1952). Further, none of the studies cited above controlled for the mediating influence of group viewing on patterns of program choice (c.f., Webster and Wakshlag, 1982). Given these potential problems, the relative contribution of program content to patterns of audience flow is still an open question.

This study explores that question by examining audience duplication between consecutively broadcast daytime serials (soap operas), scheduled on the same and competing stations. This particular program type was chosen for analysis because it is known to meet the criterion of being viewer-defined (e.g., Darmon, 1976; Swanson, 1967; Wells, 1969), and is more generally assumed to evoke strong affective dispositions among fans of the genre. Hence, audience duplication between pairs of these programs should be significantly higher than among pairs of similarly scheduled non-serials. The analysis investigated the following hypotheses while controlling for viewer availability and the influence of group viewing; 1) within channel audience duplication is greater for adjacent pairs of daytime serials than for adjacent pairs of non-serials, and 2) between-channel audience duplication is greater for adjacent pairs of daytime serials than for adjacent pairs of non-serials.

METHOD

The data base for this research was television viewing diary data collected by Arbitron on May 1981 from 1,629 randomly-selected New York area households.[1] New York City is the largest television market in the United States with seven TV stations: three network O&O's (WABC, WNBC, WCBS), three independent stations (WPIX, WOR, WNEW) and a public television station (WNET).

From this data base a subset of all female head of household was used in the analysis. Using the female head of household

eliminates the possibility of correlations among family members and is consistent with other research in this area (Webster and Wakshlag, 1982; Goodhardt et al., 1975).

This study assumed that the use of the medium is unrelated to program content (c.f. Owen et al., 1974; Barwise et al., 1982; Gensch and Shaman 1980). Therefore, non-viewing was treated as a source of error unrelated to available program content. Availability to view was defined by whether or not the female head of household was viewing television. On any given day, availability was controlled by including in the sample only women who viewed at both 12:30 and 1:00 p.m. Women who viewed at one time, but not the other, were systematically excluded from any given program pair comparison. (c.f. Webster and Wakshlag, 1982)

Viewing group has been found to mediate program preference (Webster and Wakshalg, 1982). Stable or constant viewing groups demonstrate greater program loyalty than groups whose composition varies. This study controlled for viewing group by including in its sample only those viewing groups which included the female head of household and remained constant from 12:30 through 1:00 on any given day.

Goodhardt et al. (1975) have reported that neither channel loyalty nor inheritance effects are influenced by program type. Therefore no difference in audience duplication between channels which aired daytime serials and channels which did not would be expected. To control for the effects of channel and scheduling, this study examined the audiences for the six commercial stations

in New York City at 12:30 and 1:00 p.m. During this time, three of the stations broadcast serials and three did not.[2] The scheduling patterns of afternoon television facilitated analysis. All of the programs were strip-programmed[3] providing an important regularity of schedule necessary to analyse consistent trends of behavior. In addition to the regularity of schedule, the 12:30 and 1:00 p.m. times were important because all six commercial stations began new programs at 1:00. Inheritance effects between the two time periods could not, then, be caused by non-coterminous programs which would block audience members from choosing a new program. Analysing this particular time period allowed for maximum program choice possibilities between these six stations. The 12:30-1:00 p.m. time period was the only afternoon time period which afforded this unique scheduling situation.

The first step in the analysis was to compute Pearson Product Moment Correlation Coefficients for pairs of serials and non-serial programs. This resulted in a 3X3 correlation matrix for each program type (serial and non-serial). Matrices were computed for each weekday, producing ten correlation matrices for analysis. This use of such correlations to study audience duplication has been employed in other studies of viewing behavior (Ehrenberg, 1968).

To examine the first hypothesis on within-channel duplication, the following steps were taken. First, for each weekday an average-weighted correlation was computed from each serial and non-serial matrix using the primary diagonal coefficients in each

matrix. The average weighted correlation used r^2 to find the mean correlation of two or more correlations. The next step in the analysis required that, for each day, the average-weighted correlation for within-channel duplication among serials and the average-weighted correlation for non-serials be tested to determine if the difference between the two average-weighted correlations were significant. The difference was measured by a test for the difference between dependent correlations. The resultant t statistic measured whether or not the observed difference was significant.

The second hypothesis, concerned with between-channel duplication, was analyzed in much the same way. The difference was in the computation of the averaged weighted correlations. Whereas, the within-channel test used the correlation on the primary diagonal, the between-channel test averaged all non-diagonal correlations in the matrix. Then, again, for each day, the difference between the two average-weighted correlations was tested to determine if the difference in between-channel patterns of audience duplication was significant. The same test for the difference between dependent correlations was used to test the difference for between-channel patterns of audience duplication.

RESULTS

Table I reports the average-weighted correlations for pairs of serials and pairs of non-serials broadcast on the same channel. This table also reports the t value and its associated probability

resulting from the t test for differences between each day's serial and non-serial average correlations.

TABLE I

Within-Channel Audience Duplication

Day	Serials	Nonserials	t value	N
Monday	.694	.233	7.394*	134
Tuesday	.732	.176	10.789*	132
Wednesday	.681	.187	8.085*	140
Thursday	.667	.185	7.668*	142
Friday	.749	.114	17.111*	119

*p.001

It should be noted, that, in examining the cross tabulations of the data for within-channel duplication, the marginal totals consistently displayed a moderate inequality. However, the strength of the subsequent correlations and the high t value suggest that the patterns of viewing revealed are real and not an artifact of skewed data.

As predicted, the correlations for pairs of serials were significantly greater than pairs of non-serials. The average-weighted correlations among serials evidences a strong association. This indicates a pronounced tendency for available viewers who

watched a daytime serial to view the next serial on the same channel. The average-weighted correlations for pairs of non-serials were positive, but consistently smaller than those for serials. The absence of a strong association here indicated that there was not a particularly strong tendency for viewers of a non-serial to watch the next non-serial. Consistent with the first hypothesis, the results indicate that duplication was significantly greater among pairs of serials aired over the same channel than among pairs of non-serials aired over the same channel.

Table II reports the average-weighted correlations and the tests for differences between pairs of serials and non-serials broadcast on different channels.

TABLE II

Between-Channel Audience Duplication

Day	Serials	Nonserials	t value	N
Monday	-.336	.097	-3.11*	134
Tuesday	-.387	.058	-3.262*	132
Wednesday	-.348	.156	-3.631**	140
Thursday	-.346	.053	-3.013	142
Friday	-.421	.047	-3.302**	119

*p .01
**p .001

The results in this table differ from the results of the within-channel duplication. The average-weighted correlations produced from between-channel serial pairs are all negative and substantially smaller than their within-channel counterparts. Contrary to the second hypothesis, between-channel audience duplication was less evident among pairs of serials than non-serials. The t values resulting from the test for difference between dependent correlations were all significant, however, the direction of the relationship is the opposite of what was predicted. The results indicate that viewers of serials on a particular channel are relatively unlikely to switch to a competing channel's serial at 1:00 p.m. Those viewers who watched a non-serial at 12:30 p.m. demonstrated no special tendency to seek out or avoid non-serials on competing channels, as evidenced by the small positive association of between-channel non-serial pairs.

The results reported here provide strong support for the first hypothesis that predicted greater within-channel audience duplication among pairs of serials than among pairs of non-serials. The results failed to support the second hypothesis which predicted between-channel duplication would be greatest for pairs of serials. Interestingly, there were negative correlations between the audience for serial pairs broadcast on different channels.

CONCLUSIONS

Contrary to the findings of Goodhardt, et al. (1975), this research suggests that preference for types of program content

plays a significant role in determining patterns of program choice. Indeed, the widely observed phenomenon of adjacent program audience duplication, or inheritance effects, appears to be facilitated by sequentially scheduling programs of a type. By demonstrating this relationship, the study lends empirical support to a theoretical assumption central to work in media economics, marketing and uses and gratifications research.

More specifically, the research indicates the complications that actual patterns of program scheduling introduce to analyses of viewing behavior. Early factor analytic studies of program preferences (e.g., Wells, 1969) produced evidence of readily indentifiable program types. Factor analytic studies using choice data, on the other hand, produced "program types" that were seemingly defined by channel (e.g. Kirsch and Banks, 1962, Bowman and Farley, 1972). In all probability, this discrepancy resulted from the different nature of the data bases. In response to preference items, viewers were free to prefer any and all programs of a type, even if the actual scheduling of those programs might preclude viewing. The factor analytic studies of actual viewing behavior did not allow for the expression of unrestricted preferences. Often times, choices are "forced" in nature, perhaps requiring viewers to select among two or more equally appealing programs aired simultaneously. The results of this research clearly illustrate the problem. The overwhelming degree of audience duplication for within-channel serials indicated that choice was related to program type, however, the very strength of this relationship necessarily precluded a positive across-

channel correlation among serials. Given this type of scheduling strategy, which is not at all atypical, it is not surprising that factor analyses of choice data discover types within types defined by channel.

It might be argued that the stations broadcasting daytime serials simply had especially loyal viewers, and so the patterns identified in this research are no more or less that ordinary manifestations of channel loyalty or inheritance effects. This is unlikely. Channel loyalty is known to result from variability in the amount of television a station's audience views (Goodhardt, et al., 1975). By confining the analysis to individuals who were available (i.e., watching) when any two programs in a pair were broadcast, the primary determinant of channel loyalty was controlled. Caution should, however, be exercised in generalizing the results of the research to other program types which may or may not elicit strong systematic preferences across the audience (c.f. Webster and Wakshlag, 1982).

Broadly speaking, the results are supportive of recent models of program choice (Webster and Wakshlag, 1983) which are sensitive to viewer preferences, but which also recognize the influence of additional factors in determining program selection. As such, the study contributes to a reconciliation of specific theorectic assumptions with observed behavior, and increases our understanding of this interesting facet of human behavior.

NOTES

1. For a complete discussion of Arbitron's method see Arbitron Television Reports: Description of Methodology. New York: Arthor, 1980.

2. Programs and stations analyzed were: WCBS: Search for Tomorrow/Young and Restless; WNBC: The Doctors/Days of Our Lives; WABC: Ryan's Hope/All My Children; WPIX: Family Affair/Action News; WNEW: Love American Style/My Three Sons; WOR: Let's Make a Deal/Movie 9.

3. Strip-programmed refers to the common programming practice of broadcasting the same program at the same time each weekday. See Eastman et al., 1981.

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